

We claim:

1. The use of an enzyme mixture containing at least one enzyme with phospholipid:diacylglycerol acyltransferase activity for the production of plant storage lipids containing polyunsaturated fatty acids.
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2. The use as claimed in claim 1, wherein an enzyme mixture containing at least one enzyme with phospholipid:diacylglycerol acyltransferase activity and at least one further enzyme with the activity of a hydroxylase, epoxygenase, acetylenase, desaturase, elongase, conjugase, trans-desaturase or isomerase is employed.
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3. The use as claimed in claim 1 or 2, wherein an enzyme mixture containing an enzyme with phospholipid:diacylglycerol acyltransferase activity, desaturase and elongase activity is employed.
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4. The use as claimed in any of claims 1-3 for the production of long-chain polyunsaturated fatty acids.
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5. The use according to any of claims 1-4 for the production of gamma-linolenic acid, arachidonic acid, gamma-limolenic acid, eicosapentaenoic acid, stearidonic acid or docosahexaenoic acid.
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6. The use as claimed in any of claims 1-5, wherein the enzyme with PDAT activity is encoded by a nucleotide sequence which is capable of replication, is present in a plant cell in at least 2 copies and/or contains regulatory sequences bringing about an at least 2-fold
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increase in gene expression and/or enzyme activity.

- 5 7. The use as claimed in any of claims 1 to 3, wherein the replicating nucleotide sequence encoding an enzyme with PDAT activity is encoded chromosomally or extrachromosomally.
- 10 8. The use as claimed in any of claims 1 to 4, wherein the nucleotide sequence encoding an enzyme with PDAT activity is derived from plants.
- 15 9. The use as claimed in any of claims 1 to 5, wherein the nucleotide sequence encoding an enzyme with PDAT activity is derived from *Arabidopsis thaliana*.
- 20 10. The use as claimed in any of claims 1 to 6, wherein the enzyme with PDAT activity encompasses an amino acid sequence as shown in SEQ ID No. 2 encoded by a nucleotide sequence as shown in SEQ ID No. 1 or alleles thereof.